

distinguished by a large gular sac (as in *Velasia*) and by the different form of the caudal fin. The fish inhabits the brooks of some parts of Chili, and is thrown away by the fishermen, who regard it as unwholesome.—*Wiegmann's Archiv*, 1864, p. 107.

*On the Parasitic Nature of the Mistletoe.*

By JOSEPH BOEHM.

The author divides plants in general into the two following groups:—

1. Chlorophyll-bearing, which assimilate the inorganic substances drawn up by the roots from the soil, and thus become the ancestors of all the rest of living nature.

2. Chlorophyll-free, which either extract the assimilated juices from other organisms, or nourish themselves from dead organic matter. The latter plants alone, which live in the manner of animals, are regarded by the author as *parasites*.

The Mistletoe has always been regarded as a plant which extracts the organic juices from the plant on which it grows, and consequently leads a parasitic existence. Boehm calls attention to the following circumstances, which are particularly adverse to this view:—

1. The mode of insertion of the roots of the Mistletoe into the wood of the tree on which it grows.

2. The occurrence of the plant in question upon more than thirty species of trees, all, however, of indefinite growth (*Endumsprosser*).

3. The different results of the analysis of the ashes of the Mistletoe and its supposed nutritive plants.

4. The comparative size of the branches bearing Mistletoe above and below the insertion of the apparent parasite.

Recent investigations, repeated by Boehm, have placed it beyond a doubt that, in trees with indefinite growth, the ascent of the crude nutritive material takes place in the wood, but the assimilated formative juices descend in the bark. Even Knight was aware that when annular strips are removed from the branches of these plants, the latter become thickened only above the annular wound.

This circumstance enabled the author to decide with absolute certainty that the Mistletoe has precisely the same relation to its nutritive plant as a twig to its parent branch, or the graft to the stock. From thirty branches bearing Mistletoe (on *Acer*, *Populus*, and *Quercus*) the terminal twigs above the attachment of the Mistletoe were cut away and the branches ringed below the Mistletoe. Whilst in *Acer* and *Quercus* the branches thus treated usually died soon, the Mistletoe plants on the Poplars not only continued their normal growth, but a thickening of the branch above the annular wound took place. This can only have occurred at the expense of the juices assimilated by the Mistletoe.

The fact that the development of the branches above the insertion of the Mistletoe is hindered has, in the author's opinion, nothing to do with the parasitic nature of that plant. The Mistletoe acts only in the same way as any branch of the tree of which the development is in advance of its neighbours. The injurious effect of the presence

of Mistletoe upon the growth of the twigs below it is to be ascribed partly to the aborted condition of the terminal shoots, and partly to the fact that the juices assimilated by the Mistletoe are chiefly applied to its own increase, and may be less fitted for the development of the tree on which it grows.—*Bericht der Akad. der Wiss. in Wien*, June 30, 1865, p. 113.

*On a Fungus which is developed in Ivory and Bone.*

By PROFESSOR WEDL.

In examining some sections of human teeth which had been macerated for a few days in water, Professor Wedl found that the cement and the peripheral layers of dentine were furrowed by microscopic channels. He soon recognized in these channels small parasitic plants, closely resembling those which perforate the shells of Mollusca. A careful examination of the water in which the sections had been macerated furnished numerous small cells, which might be regarded as the spores of the Fungus. Fragments of normal teeth placed in the same water were soon infested by these little parasites, the operation of which is, however, confined to the cement and dentine, and never extends to the enamel. The Fungus also attacked fragments of bone macerated in the water.

These little Fungi seem to be developed at the expense partly of the organic and partly of the inorganic matter of the ivory and bone; and the conditions of their multiplication doubtless frequently occur in nature. They do not, however, appear to attack teeth until after death; so that they have nothing to do with caries. Professor Wedl has ascertained that these parasites have been in action from a high antiquity, many teeth of fossil Fishes and Mammalia exhibiting unequivocal traces of their action.—*Sitzungsber. Akad. Wiss. in Wien*, July 14, 1864; *Bibl. Univ.* 1865, *Bull. Sci.* p. 231.

*Note on the Ammobroma Sonoræ.*

This (the literal translation of which is "sand food of Sonora") is the name of an extraordinary root-parasitic plant, of the region at the head of the Gulf of California, which Dr. Torrey has just described and figured in the eighth volume of the 'Annals of the Lyceum of Natural History of New York.' It has been briefly noticed before (but never fully characterized) as a new genus allied to the rare Mexican *Corallophyllum* of Kunth (or *Lennoa*, Lexarza), and still more to the Californian and hardly better known *Pholisma* of Nuttall. It hardly throws any new light upon the affinity of these strange plants, which, though justly thought to be rather Monotropaceous than Orobanchaceous, are still obscure. This plant, growing in a forlorn sandy desert, almost covered by the sand in which it lives, was found by its discoverer, the late Col. A. B. Gray, to form a considerable part of the sustenance of the Papigos Indians of the district, and is said to be very luscious when first gathered and cooked, resembling in taste the sweet potato, only far more delicate.—*Silliman's Journal*, July 1865.